

State Education Data Systems: How Does Colorado Measure Up?

The Problem

Under the requirements of federal and state accountability systems teachers, schools and districts are under increasing pressure to significantly raise the academic achievement of all their students. The ability to effectively achieve these performance gains is dependent on the availability of high quality, accessible education data. Policymakers and education researchers also need access to these data to support educators in the improvement process, evaluate the effectiveness of alternative educational strategies and assess the overall performance of the state's educational system. Many state data systems today struggle to meet these demands. These systems were designed to provide a snap shot of student and assessment data often aggregated to the school or district level. In most states individual student data can not be linked with data about their teachers, instructional programs, courses, or their school's spending patterns. Few states systematically collect data on the school readiness of pre-school children or high school students' readiness for college. Data systems for different educational levels – early childhood, P-12 and higher education – are rarely compatible. Further, these data are often not readily accessible to educators, policymakers or researchers. Without these data policymakers do not have the tools needed to adequately evaluate program effectiveness or guide instructional improvement and reform.

While Colorado has taken steps to improve the comprehensiveness and quality of its educational data system, concerns remain. These include:

- The need for a statewide system for collecting data on young children's readiness for school or high school students' college preparedness.
- The need for unique teacher identifiers to permit matching with program and student data.
- Multiple data systems for teacher characteristics, certification and preparation which are not integrated and systematic.
- A need for more guidance and training for school and district staff to improve data reliability and consistency.
- Greater integration across the preschool, K-12 and higher education systems.
- Greater integration across service provider systems, such as education, social services and health care.
- Greater access for policymakers and researchers to student-level data files.

The Context

A high quality, integrated, longitudinal, and accessible education data system offers a number of advantages to educators, policymakers and researchers. These include the ability to identify students who are not making adequate progress toward proficiency and the areas in which they are weak; assess the effectiveness of specific programs and schools; identify best practices; evaluate the effectiveness of teacher preparation, certification and professional development programs; track and analyze trends in the educator professions; and assess how well students transition from early childhood programs to K-12 and from K-12 to higher education. A comprehensive system that includes information about the services families and their children are receiving from all social service providers is also important for providing a complete picture of the needs of children and families and the services being provided or available to assist them. Integrated data systems also help to facilitate the coordination of services from multiple service providers.

In recent years many states, including Colorado, have begun taking steps to improve their collection of and access to education data. In Colorado improvements include:

- Creation of a unique, statewide identifier for each student that enables the tracking of students across school districts and the analysis of students' performance over time.
- A common student identifier from pre-school through college for Colorado high school graduates. However, the identifier is only assigned to children enrolled in school-based pre-kindergarten programs and is not linked to other social service providers. A more effective approach would be to assign a universal identifier to all children enrolled in any pre-school program that would also link to other city, county and state provided services.
- The establishment of an Education Data Warehouse and a user interface for CDE and school district staff (the Colorado Education Data Analysis Reporting system or CEDAR). However, access to these data by policymakers and researchers continues to be limited due to the Department's restrictive interpretation of the federal law governing privacy of education data (FERPA).

The Data Quality Campaign's Recommendations for a Quality System

However, concerns remain about the quality of the state's education data, accessibility to these data and access to information about children's school readiness and the preparation of our graduates for 21st century careers. For example, the state does not measure young children's readiness for school or assign unique identifiers to teachers to permit matching with program and student data.¹ Further, three separate databases hold data on teacher characteristics, certification and preparation.² More guidance and training for school and district staff on data coding and reporting are also needed to improve data reliability and consistency across schools and districts. Raw data files, particularly at the student level, are still not readily accessible to external policymakers and researchers.

What would a high quality state educational data system look like? The Data Quality Campaign, a national organization affiliated with the National Center for Educational Accountability and funded by the Bill and Melinda Gates Foundation, has identified 10 essential elements of an effective, longitudinal student data system:³

1. A unique statewide student identifier.
2. Student-level enrollment, demographic and program participation information.
3. The ability to match individual students' test records from year to year to measure academic growth.
4. Information on untested students.
5. A teacher identifier system with the ability to match teachers to students.
6. Student-level transcript information, including information on courses completed and grades earned.
7. Student-level college readiness test scores.
8. Student-level graduation and dropout data.
9. The ability to match student records between the P-12 and postsecondary systems.
10. A state data audit system assessing data quality, validity and reliability.

However, even these standards fall short in assuring accessibility to external policymakers and researchers and incorporating data from non-educational service providers.

A survey conducted by the National Center for Educational Accountability in 2006 reported that Colorado met, or partially met, six of these essential elements.⁴ These include:

- A unique statewide student identifier was implemented in 2002 so that individual students may be tracked across districts and over time. However, the state does not collect information on specific skill levels. Legislation passed in 2006 now requires a single identifier for Colorado high school graduates P-16.
- The state collects student-level membership, demographic data (including eligibility for the federal Free and Reduced Price Lunch program, gender, and ethnicity), and program participation data for such programs as special education, gifted and talented, English language acquisition, and Title I.
- Colorado also collects data on students who are excluded from taking the CSAP state tests and the reason for their exclusion.
- Student level data for dropouts and graduation, including special coding for transfers, GED completers, and other special circumstances are collected by the Colorado Department of Education (CDE). INCLUDE discussion of recent changes and controversy for this coding and reporting
- The CDE has initiated a set of internal validity checks of the student data reported by districts, including validation rules and statistical checks. However, the Department does not audit district reporting procedures or levy consequences for districts with poor data reporting practices.

Since this survey was conducted Colorado has implemented a single student identifier for tracking at least some students from pre-school through higher education.

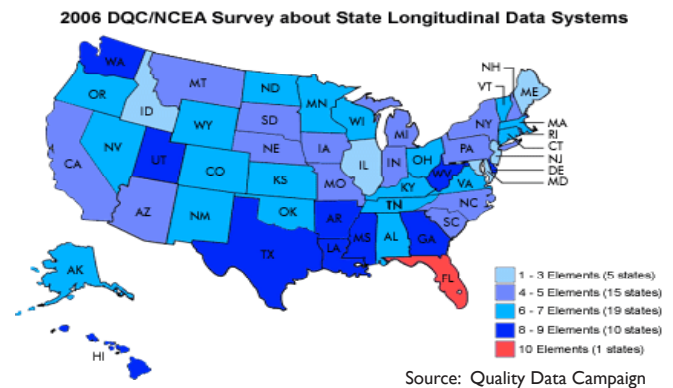
¹ A commission was established by the legislature in 2007 to explore the creation of a unique teacher identifier.

² Badolato, V. Teacher Data in Colorado: Considering Potential Opportunities and Risks of Recent Proposals. 2007. Education and the Public Interest Center, University of Colorado at Boulder. July 18 2007 <http://aqt.civcore.com/Modules/Resources/Resources/66.pdf>

³ Data Quality Campaign. Creating a Longitudinal Data System: Using Data to Improve Student Achievement. 2006. National Center for Educational Accountability, Austin. 17 July 2007 http://www.dataqualitycampaign.org/files/Publications-Creating_Longitudinal_Data_System.pdf

⁴ National Center for Educational Accountability. 2006 NCEA State P-12 Data Collection Survey Results. 2006. National Center for Educational Accountability. July 16 2007 http://www.dataqualitycampaign.org/survey_results/index.cfm A summary of the CDE's responses to the NCES survey may be found at: http://www.dataqualitycampaign.org/survey_results/state.cfm?st=Colorado

The map at right shows the number of data system elements implemented in each of the states based on the NCEA survey results. Only one state, Florida, has implemented all 10 elements thus far. Florida and Texas are currently regarded as possessing the most comprehensive education data systems in the nation.⁵



Recent Actions in Colorado

Over the past two sessions the legislature has enacted several pieces of legislation impacting the collection and reporting of educational data. These include requiring the development of a longitudinal academic growth model for measuring individual student growth over time, ordering a comprehensive review of the state's education data systems, establishing the Teacher Quality Commission to make recommendations for a unique identifier for teachers and principals, and directing the Technical Advisory Panel on the Measurement of Longitudinal Academic Growth to develop a growth model for identifying schools for the Governor's Distinguished Improvement Awards program. Legislation passed this year also authorized changes to the mix of information districts must report for their School Accountability Reports and establishes the Education Data Advisory Committee to review and make recommendations for reducing and/or streamlining education data reporting requirements for school districts. It is possible that the Committee's recommendations may include elimination of data elements important to policymakers.

In 2006, Colorado was among 20 states to apply for the U.S. Department of Education's pilot program for developing alternative AYP growth models under No Child Left Behind. However, the state was not among the eight states selected to participate so far. The CDE was recently awarded a \$4.2 million grant from the U.S. Department of Education grant to support its development of a longitudinal student data system (Longitudinal Education Data Action Plan or LEAP). The purpose of the grant money will be to:

- Expand the Education Data Warehouse to support unification of data for research and reporting.
- Support the transfer of transcript and other student data among school districts and between school districts and state colleges and universities.
- Expand state data analysis and reporting capabilities.

Important Policy Questions

The following questions should be carefully considered when developing and implementing a comprehensive, longitudinal education data system.

- What do you want the data system to do? What policy and school improvement questions should the system be able to answer?
- What technology and data infrastructures are already in place that can serve as the foundation for the system?
- Who will have responsibility for and control over the administration and operation of the data system?
- Who will have access to the data and who has the authority to grant or deny access?
- How can the system be made accessible to educators, researchers and policymakers while still protecting student and staff privacy?⁶
- What are the state and school district roles in making these data accessible for improving student achievement?
- Will the system include information across school levels (pre-school, K-12 and higher education) and from other service providers?
- Will the system be flexible enough to easily incorporate new uses?
- How will ongoing resources be provided to maintain and enhance the system?

⁵ The following link is for the Florida Department of Education's Data Warehouse homepage <http://edwapp.doe.state.fl.us/doe/main.htm>. Although a login ID and password are required to access Warehouse data, information is presented on the type of data collected and reported and the structure of their PK-higher education data system.

⁶ For more information regarding federal student privacy requirements (FERPA) see Maximizing the Power of Education Data while Ensuring Compliance with Federal Student Privacy Laws: A Guide for State Policymakers http://www.dataqualitycampaign.org/files/Publications-FERPA_A_Guide_for_State_Policymakers.PDF

Summaries of Recent Legislation Concerning Education Data Systems and Accountability

- HB 07-1048 requires the CDE to contract for the development of a longitudinal growth model of individual student performance on CSAP assessments to measure academic growth over time and progress toward meeting state proficiency standards. The model should be in place for calculating individual students' academic growth by the fall of 2007. The text of the bill is found at http://www.state.co.us/gov_dir/leg_dir/olls/sl2007a/sl_2.pdf
- HB 07-1270 orders a comprehensive review of the educational data systems of the state and local school districts. The review will look at data capacity, accessibility, interoperability among systems for the exchange of data as well as the quality of services, adequacy of the systems' architecture and resources, and inefficiencies. The text of this bill is found at http://www.state.co.us/gov_dir/leg_dir/olls/sl2007a/sl_268.pdf
- HB 07-1320 created the Education Data Advisory Committee made up of representatives from school districts, cooperative services and charter schools to work with the CDE to review and make recommendations for reducing and streamlining data reporting requirements. The Committee will also review new data requests and make recommendations on whether they are appropriate and compliance is voluntary or mandatory. The law also directs the CDE to develop a data dictionary specifying the various data elements districts must report and the manner and timing of their submission. The text of this bill is found at http://www.state.co.us/gov_dir/leg_dir/olls/sl2007a/sl_269.pdf
- HB 07-1345 makes changes to the data reported on the school accountability report cards, adding new requirements and eliminating some existing requirements. The text of this bill is found at http://www.state.co.us/gov_dir/leg_dir/olls/sl2007a/sl_267.pdf
- SB 07-140 established the Quality Teacher Commission to examine the teacher gap, where the most at-risk students are being taught by the least experienced and qualified teachers, in Colorado and to make recommendations to the legislature on the establishment of unique identifiers for teachers and principals that may be used with the longitudinal student database under development. The text of this bill is found at http://www.state.co.us/gov_dir/leg_dir/olls/sl2007a/sl_121.pdf
- HB 06-1109 directs the Technical Advisory Panel on the Measurement of Longitudinal Academic Growth to develop a growth model for identifying schools for the Governor's Distinguished Improvement Awards program. The text of this bill is found at http://www.state.co.us/gov_dir/leg_dir/olls/sl2006a/sl_125.htm
- SB 06-24 requires state higher education institutions to adopt the student identifier assigned to students while in the PK-12 system so that a single identifier is assigned to a student for his or her entire Colorado educational career. The single identifier will be phased in between July 2007 and July 2009. The bill also directed the State Board of Education and the Commission on Higher Education to enter into an agreement to share student data. The text of this bill is found at http://www.state.co.us/gov_dir/leg_dir/olls/sl2006a/sl_174.pdf



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